

REMARKS

Claim 1 has been amended to recite a process of preparing alkylated dihydroxybenzene using modifying montmorillonite K-10 solid acid catalyst. Support for the amendment is found in Examples 1 to 6 and no new matter is introduced hereby. The amendment is made to place the claims in condition for allowance and does not provoke new examination. Entry of the amendment is requested.

RESPONSE

Rejection Under 35 U.S.C. §112

The Examiner has finally rejected the pending claims 1, 2, 4 and 5 under §112, first and second paragraphs. It is the Examiner's position that the expression

“montmorillonite K-10 modified with an acidic function”
lacks support and description in the specification as filed.

The Examiner contends that lines 4-8 of page 1 is directed to unidentified known processes, not the claimed invention and the passage did not reference the modified montmorillonite K-10. And, further, there is no indication that the “modified montmorillonite K-10” of the examples is the same thing as montmorillonite with an acid function. Therefore, the passages in the specification describing how clays such as montmorillonite may be modified do not provide support for the claimed invention. Reconsideration of the rejection is requested in view of the amendment and for the following reasons.

Claim 1 has been amended to recite using modified montmorillonite K-10 solid acid catalysts in a process for preparing alkylated dihydroxybenzene. It is believed that as amended, Claim 1 is supported by and described specifically in Examples 2-6 on pages 4 to 6 of the specification.

Applicants wish to point out that the claims are not directed to a process for modifying montmorillonite K-10. Claims 1, 2, 4 and 5 are directed to a process for preparing alkylated dihydroxybenzene by using modified montmorillonite K-10 solid acid catalyst. To a person of ordinary skill in the art it is clear that the specification taught that montmorillonite clays are known and that modified montmorillonite clays are known.

It has long been known that montmorillonite K-10, a clay, can be modified and as modified has been used as solid acid catalysts. Enclosed herewith is a declaration by one of the co-inventors Sankarasubbier Narayanan with five supporting references.

S. Narayanan, et al. Applied Catalysis A: General, 2000, 199:1-31 describes solid acid catalysts. It is clear based on this article that clays, including montmorillonite clays are well known as catalysts. It is also known that they are Bronsted and Lewis acid catalysts. It is also known that the naturally occurring clays can be modified by several ways by acid leaching, pillaring with polyhydroxy metal cations or metal clusters, by impregnation with metal oxides. See also Vaccari, Applied Clay Science, 1998, 14:161-198. The use of these clays as solid acid catalysts have been known since 1915. Acid treatment of the solid acid catalysts has been known since 1960's. Their properties modified or unmodified are well known. These solid acid catalysts are available commercially. See S. Narayanan et al., Applied Catalysis A: General, 2000, 213:273-278.

Based on the declaration and the supporting references, it is clear to those of skill in the catalyst art that montmorillonite clays are useful as catalysts. Among these are montmorillonite K-10, which is known and commercially available as unmodified and modified. These references described and support the description of the ways in which montmorillonite K-10 can be modified on page 1, last paragraph, lines 4 to 8 of the specification: acid modification, pillaring with polyhydroxy cations, ion exchange and metal oxide impregnation.

It is clear that no matter how modified, the resulting modified montmorillonite K-10 clays are known as a solid acid catalysts. See further, discussion on the use of clays as acid catalysts and specifically modified montmorillonite clays as acid catalysts in the articles attached to the declaration: Applied Catalysis A: General, 199 (2000), page 3; volume 213 (2001) 273-278; A. Vaccari, Applied Clay Science 14 (1999), pages 162-167; and T.J. Pinnavaia, Clays, 1993, page 5; S. Narayanan, et al. Applied Catalysis A: General, 193 (2000) pages 17-27.

The claims as amended recite the use of modified montmorillonite K-10 solid acid catalyst in the process. There is nothing in the specification or the claims that

require the montmorillonite K-10 clay to be modified in a specific manner. As long as modified montmorillonite K-10 is used.

"Satisfaction of this [§112 written description] requirement is measured by the understanding of the ordinarily skilled artisan."

Amgen v. Hoechst Marion Roussel et al., 314 F.3d 1313 (Fed. Cir. 2003)

It is clear from the specification that modified montmorillonite K-10 is known and that no matter how modified, it is useful as a solid acid catalyst. This known material is used in the process of the present invention as claimed to provide an improved yield of alkylated dihydroxybenzene. More is not required.

Apparently, the rejection is based on the contention that the claimed process is directed to a novel process of modifying montmorillonite K-10. It is not. There is no requirement for reciting in the claim the methods of modifying a well known material merely because it is used in a claimed novel process. The contention that the modified montmorillonite K-10 is modified by an unknown process is unfounded. The claimed process merely makes use of the known material, modified montmorillonite K-10, that is available to an ordinarily skilled artisan. No more written description is required. Applicants believe that the invention is fully described and enabled. Thus, the rejection of claims 1, 2, 4 and 5 on this ground should be withdrawn.

No other issues have been raised by the Examiner. For the above reasons, Applicants believe that the invention as claimed is allowable and an early allowance is requested.

Respectfully Submitted,



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